

CLAIMS

1. A luciferase having resistance to a surfactant.
2. The luciferase of claim 1 wherein an amino acid corresponding to that at the 490-position of luciferase from Genji or Heike firefly is substituted by an amino acid other than glutamic acid in the amino acid sequence of firefly luciferase.
3. The luciferase of claim 2 wherein the amino acid other than glutamic acid is lysine.
4. The luciferase of claim 1 wherein it is:
 - (a) a polypeptide consisting of the amino acid sequence shown in SEQ ID NO:4; or
 - (b) a polypeptide comprising additions, deletions or substitutions of one or more amino acids in the amino acid sequence of the polypeptide defined in (a) and having luciferase activity resistant to a surfactant.
5. The luciferase of claim 1 wherein it is:
 - (a) a polypeptide consisting of the amino acid sequence shown in SEQ ID NO:6; or
 - (b) a polypeptide comprising additions, deletions, or substitutions of one or more amino acids in the polypeptide defined in (a) and having luciferase activity resistant to a surfactant.
6. A luciferase gene encoding the luciferase of any one of claim 1 to 5.
7. A recombinant vector comprising the luciferase gene of claim 6.
8. A transformant comprising the recombinant vector of claim 7.
9. A method for producing a luciferase wherein the method comprising culturing the transformant of claim 8 in a medium and recovering the luciferase from the resulting culture.
10. A method for measuring intracellular ATP characterized in that a luciferase having resistance to a surfactant is used as a luciferase for use in the method comprising a first step wherein ATP is extracted in the presence of the surfactant from cells in a sample, a second step wherein a luminescence reagent containing luciferase is added to the extracted ATP solution to cause emission of light, and a third step wherein the amount of light emission is measured.

11. The method for measuring intracellular ATP of claim 10 wherein the luciferase having resistance to a surfactant is a luciferase of any one of claim 1 to 5.

12. The method for measuring intracellular ATP of claim 10 or 11 wherein the light emission is caused by ~~addition~~ of a luminescence reagent in the presence of a surfactant of 0.01% or more.

13. The method for measuring intracellular ATP of claim 10, 11 or 12 wherein the surfactant is any of a cationic surfactant, an anionic surfactant, a nonionic surfactant, and a ampholytic surfactant.

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B 11*

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C 1*